

II.A.4.N.a.32. PINUS PONDEROSA WOODLAND ALLIANCE

Ponderosa Pine Woodland Alliance

PINUS PONDEROSA / BROMUS INERMIS SEMI-NATURAL WOODLAND

Ponderosa Pine / Smooth Brome Semi-natural Woodland

ELEMENT CONCEPT

GLOBAL SUMMARY: This is a woodland of native *Pinus ponderosa* with an exotic grass understory. While currently reported from the Colorado Front Range and southwestern Utah, it undoubtedly is more widespread in the West. *Bromus inermis* has been seeded in thousands of hectares as pasture grass throughout the western U.S. It requires some sort of subirrigation or moisture, so is found escaped into riparian areas, draws and hollows. In some places the seeding took place beneath mature *Pinus ponderosa* trees, and in other locations, *P. ponderosa* is slowly invading the *Bromus inermis* pasture. Stands are dominated by *Bromus inermis* with 30-40% foliar cover, with an open, park-like structure to the overstory canopy of trees, either mature or young sapling size, contributing around 20% canopy cover.

ENVIRONMENTAL DESCRIPTION

USFWS Wetland System: Upland

Florissant Fossil Beds NM Environment: Native grasslands, formerly converted to exotic pasture grasses, predominantly *Bromus inermis*, are being invaded by young *Pinus ponderosa* trees. The young trees occupy the pasture area adjacent to established woodland and forest stands, as an extension of those stands on slopes of approximately 5%. Stands of young ponderosa pine trees grow on all aspects at elevations around 8500 feet. Stands growing from previously disturbed soils, resulting from potato and small grain farming, are rooted in a gravel substrate derived from Pikes Peak granite bedrock, with little or no soil development.

Global Environment: Stands growing from previously disturbed soils, resulting from potato and small grain farming, are rooted in a gravel substrate derived from granite or sandstone bedrock, with little or no soil development. It occurs on gently sloping drainages on moderately well-drained sandy loam soil. Elevation is 6700 to 8500 feet. In one stand the young trees occupy the pasture area adjacent to established woodland and forest stands, as an extension of those stands on slopes of approximately 5%. In other stands, mature trees are the overstory canopy.

VEGETATION DESCRIPTION

Florissant Fossil Beds NM Vegetation: Young ponderosa pine trees invading former pastures supporting exotic grasses are approximately 2–5 m tall and average approximately 13 cm dbh. These trees are probably between 15 and 25 years of age. Foliar cover provided by *Pinus ponderosa* was approximately 20% for the stand sampled. Graminoids contribute approximately 40% foliar cover with most provided by the exotic *Bromus inermis*. Native grasses invading this site include *Muhlenbergia filiculmis* (approximately 10% foliar cover), *Festuca arizonica*, *Koeleria macrantha*, *Elymus elymoides*, and *Bouteloua gracilis*. Forbs are diverse, but account for less than 5% foliar cover. The most abundant forb was the exotic *Convolvulus arvensis*, along with *Hymenoxys richardsonii*, *Oxytropis lambertii*, *Gaura coccinea*, and *Heterotheca fulcrata* (= *Chrysopsis fulcrata*). Ground cover consisted of predominantly herbaceous litter (approximately 55% cover) and gravel and bare soil (approximately 40% cover). These soils were disturbed historically to seed the smooth brome pasture, and it is also possible that some site leveling occurred, disturbing the soil structure.

These woodland stands are often small, below the minimum mapping unit for the project. They are readily identifiable on both true color and CIR aerial photographs.

Global Vegetation: *Pinus ponderosa* comprises the tree canopy with over 20% cover as young, invading trees into the grassland or as mature, very tall trees. These soils were disturbed historically to seed *Bromus inermis* pastures, and it is also possible that some site leveling occurred, disturbing the soil structure. Graminoids contribute approximately 40% foliar cover with most provided by the exotic *Bromus inermis* and presence of *Poa pratensis*. Native grasses invading these stands include *Muhlenbergia filiculmis* (approximately 10% foliar cover), *Festuca arizonica*, *Koeleria macrantha*, *Elymus elymoides*, and *Bouteloua gracilis*. Forbs are diverse, but account for less than 5% foliar cover. The most abundant forb was the exotic *Convolvulus arvensis*, *Heterotheca villosa*, *Lupinus argenteus*, *Lotus utahensis*, *Achillea millefolium*, along with *Hymenoxys richardsonii*, *Oxytropis lambertii*, *Gaura coccinea*, and *Heterotheca fulcrata* (= *Chrysopsis fulcrata*).

Global Dynamics:

MOST ABUNDANT SPECIES

Florissant Fossil Beds NM

<u>Stratum</u>	<u>Species</u>
Tree	<i>Pinus ponderosa</i>
Shrub	<i>Artemisia frigida</i>
Graminoid	<i>Bromus inermis</i> , <i>Muhlenbergia filiculmis</i>
Forb	<i>Convolvulus arvensis</i>

Global

<u>Stratum</u>	<u>Species</u>
Tree	<i>Pinus ponderosa</i>
Graminoid	<i>Bromus inermis</i>

CHARACTERISTIC SPECIES

Florissant Fossil Beds NM

<u>Stratum</u>	<u>Species</u>
Tree	<i>Pinus ponderosa</i>
Shrub	<i>Artemisia frigida</i>
Graminoid	<i>Bromus inermis</i> , <i>Muhlenbergia filiculmis</i> , <i>Festuca arizonica</i>
Forb	<i>Convolvulus arvensis</i> , <i>Hymenoxys richardsonii</i>

Global

<u>Stratum</u>	<u>Species</u>
Tree	<i>Pinus ponderosa</i>
Graminoid	<i>Bromus inermis</i>

OTHER NOTEWORTHY SPECIES

Florissant Fossil Beds NM

<u>Stratum</u>	<u>Species</u>
Graminoid	<i>Agropyron cristatum</i>

Global

<u>Stratum</u>	<u>Species</u>
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GLOBAL SIMILAR ASSOCIATIONS:

GLOBAL STATUS AND CLASSIFICATION COMMENTS

Global Conservation Status Rank: GW

Global Classification Comments:

ELEMENT DISTRIBUTION

Florissant Fossil Beds NM Range: Young stands of *Pinus ponderosa* / *Bromus inermis* Woodland are invading native and exotic grasslands throughout the monument, due to moist climatic conditions conducive to tree establishment and fire suppression. The most extensive young tree stands occur north of the Boulder Creek drainage and west of the Hornbek Homestead. *Pinus ponderosa* invasion of historic, terraced potato fields may present a conflict with interpretive programs.

Global Range: This association has been described from southern Utah and central Colorado, and is likely to occur anywhere within the Ponderosa Pine belt where *Bromus inermis* has been seeded as hay pasture.

Nations: US

States/Provinces: UT CO

ELEMENT SOURCES

Florissant Fossil Beds NM Inventory Notes: Plot 26

Classification Confidence: 3 **Identifier:** Cegl002943

REFERENCES: